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Patent and Trademark Office**

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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08/949,988 10/14/97 YUNG

K PD-96315

EXAMINER

PM82/0905

HUGHES ELECTRONICS CORPORATION
PATENT DOCKET ADMINISTRATION,
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DINH, T

ART UNIT

PAPER NUMBER

3644

DATE MAILED:

09/05/01

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/949,988

Applicant(s)

YUNG ET AL.

Examiner

T. Dinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Draim in view of Westerlund.

Draim discloses that a satellite constellations covering a specific geographical area at a predetermined local peak time is well known but is silent on the tilting the trajectory to reorient the constellations to cover a second coverage. However, Westerlund teaches that tilting satellites to "reorient" the satellite constellation to cover various geographical areas are well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have tilted the trajectory of certain satellite(s) in the constellations of Draim as taught by Westerlund to maximize the coverage area of the second desired geographical area at predetermined local peak times to satisfy coverage demand.

As for the determining the "period of rotation" and determining the time coverage of the constellation based on the period of rotation and the trajectory of the desired

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satellite, please note that these are inherent steps that one skilled in the art would take so that the desired positions of the satellite can be accomplished to prevent the satellite from being lost and to maximize the coverage.

As for the programming of the computers on the satellite or sending command signals to the satellite and using simulations, please note that in today's day and age, these topics are well known to be used in the aerospace field.

As for the equations and the rotation matrices, please note that these are basic, inherent equations that one skilled in the art would have used to determine the period of rotations.

As for the limitation of a "second coverage based on the time dependent coverage....", please note that when a second coverage is desired by tilting the trajectories of the satellites, the relative orbit of the satellite with respect to each other is not changed since the tilt of the orbits of each satellite mirror each other. Also, the second coverage based on the time dependent coverage is an inherent step that one skilled in the art would have utilized so that the satellite can provide maximum coverage at certain times and locations. Satellites are expensive items therefore, one skilled in the art would have used inherent, rational steps to ensure that the satellite correctly do its job.

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Response to Amendment

In response to applicant's argument on the Draim reference's continuous coverage, the Examiner respectfully. Draim, as best seen in figure 3 and columns 5 and 6, does not show continuous coverage to all areas since a large part of southern hemisphere is not covered. By combining with Westerlund, the Draim reference meets what has been claimed. Westerlund is used to teach that tilting satellites to cover other "local area" at peak time is well known in the art. Thus, it would have been obvious to one skilled in the art at the time the invention was made to have tilted the satellite(s) of Draim to cover a different "local area" at local peak time to satisfy coverage demand. Please note that tilting the satellite(s) of Draim as taught by Westerlund to cover a different "local area" at local "peak time" is inherent, since local peak time is the period of time in which the satellite(s) must be at a "local area" to satisfy the coverage demand. Why would one skilled in the art want to tilt a satellite to a location when no coverage is needed? In other words, the Examiner would like to point out that "local peak times" can be broadly interpreted as any time that coverage is need to satisfy a demand for coverage. In conclusion, Draim as taught by Westerlund teaches coverage of an area at peak time.

As for the argument on the Westerlund reference, please note that the Westerlund teaches tilting the satellite to cover a "local area" is well known in the art (see figure 7A).

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Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tien Dinh whose telephone number is (703) 308-2798. The examiner can normally be reached on Monday thru Friday from 8 A.M. to 5 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, C. Jordan, can be reached on (703) 306-4159.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1113.



CHARLES T. JORDAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

T. Dinh

August 29, 2001